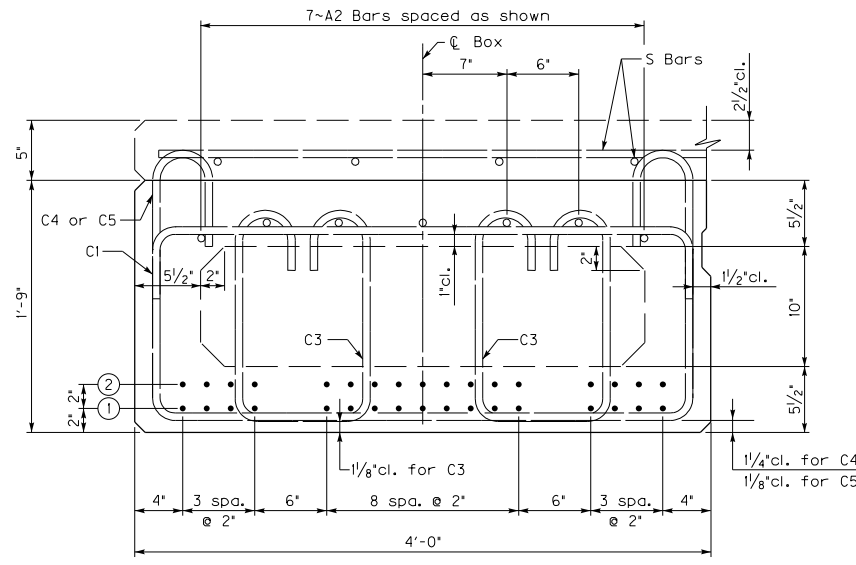
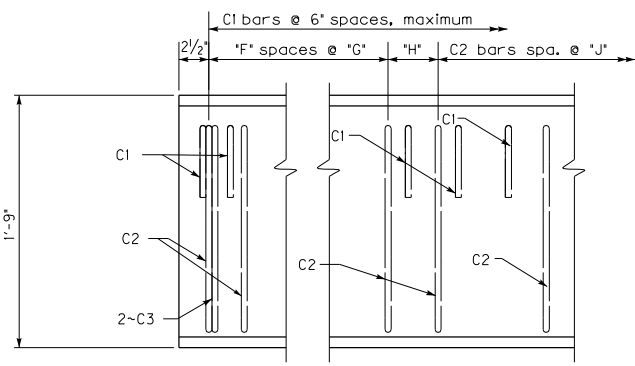


**B21 BEAM**

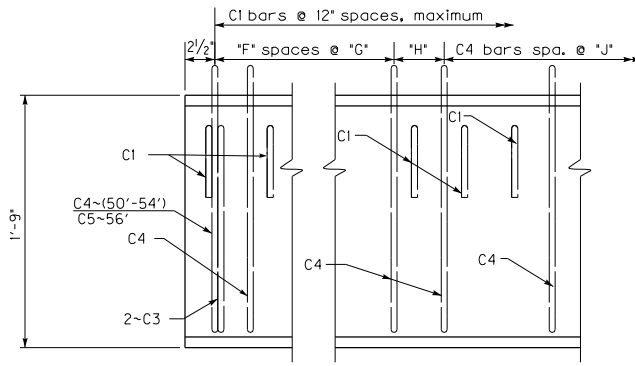


**CB21 BEAM**



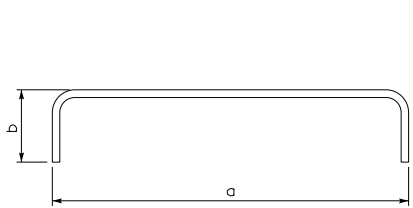
**B21 ELEVATION OF 0° SKEW**

(Refer to BDP-003, for skewed details)

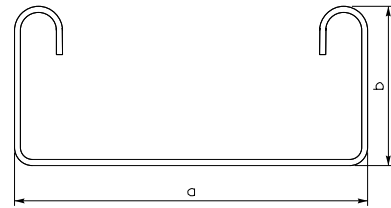


**CB21 ELEVATION OF 0° SKEW**

(Refer to BDP-003, for skewed details)



**C1(e) Bar**



**C2(e)-C5(e) Bars**

<b>Bent Reinforcement</b>			
Mark	Size	a	b
C1(e)	#5	3'-9"	6"
C2(e)	#4	3'-9"	1'-5 1/4"
C3(e)	#5	11 3/8"	1'-5 3/8"
C4(e)	#4	3'-9"	1'-10 1/4"
C5(e)	#5	3'-9"	1'-10 3/8"

**TABLE OF STRAND DATA**

Beam Type	Beam Length (feet)	Number of Strands Required	
		Row ①	Row ②
B21	44	17	
	46	17	2
	48	17	4
	50	17	6
CB21	50	17	3
	52	17	4
	54	17	6
	56	17	8

**TABLE OF DIMENSION DATA**

Beam Type	Beam Length (feet)	"F"	"G"	"H"	"J"
B21	44	6	10'	12 1/2"	14"
	46	6	9'	11 1/2"	13"
	48	7	9'	8"	13"
	50	7	9'	7"	13"
CB21	50	7	9'	10 1/2"	16"
	52	7	9'	14 1/2"	16"
	54	7	9'	10 1/2"	16"
	56	9	8'	13 1/2"	16"

**TABLE OF BAR QUANTITIES**

Beam Type	Beam Length (feet)	C1	C2	C3	C4	C5
B21	44	89	42	4		
	46	93	47	4		
	48	97	50	4		
	50	101	52	4		
CB21	50	51		4	45	
	52	53		4	46	
	54	55		4	48	
	56	57		4	50	2

**DESIGN DATA**

Beam Type	Beam Length (feet)	DC kips	DW kips	LL kips	LL+I kips	Δd (in.)	Δc (in.)
B21	44	15.7	1.3	43.9	55.5		
	46	16.4	1.3	44.7	56.5		
	48	17.1	1.4	45.5	57.4		
	50	17.9	1.4	46.3	58.3		
CB21	50	24.1	1.4	46.3	58.3	0.3	1.0
	52	25.0	1.5	47.0	59.1	0.3	1.1
	54	26.0	1.5	47.7	60.0	0.4	1.2
	56	27.0	1.6	48.4	60.7	0.4	1.4

**Straight Reinforcement**

Mark	Size	Length
A1(E)	#5	Beam Length Minus 3'
A2(E)	#4	Beam Length Minus 3'
D(E)	#8	2'-0"

**KENTUCKY**

**DEPARTMENT OF HIGHWAYS**

**BOX BEAM  
B21 & CB21  
DETAILS**

STANDARD DRAWING NO. BDP-008-04

SUBMITTED: *Mark Witt* 12-02-11  
 DIRECTOR DIVISION OF STRUCTURAL DESIGN DATE  
 APPROVED: *[Signature]* 12-02-11  
 STATE HIGHWAY ENGINEER DATE